TEST INTERFACE UNIT (TIU), 628455

GENERAL DESCRIPTION

CONTENTS PAGE

1. GENERAL 1
2. DESCRIPTION 1
3. FUNCTIONAL OPERATION (FIG. 2) 1
4. OPTIONS 3
5. TECHNICAL SUMMARY 3
6. REPLACEABLE PARTS 3
7. REFERENCES 3

1. GENERAL

1.01 This Section provides a general description of the ITT D448 test interface unit (TIU), 628455 (Fig. 1), to the functional block diagram level.

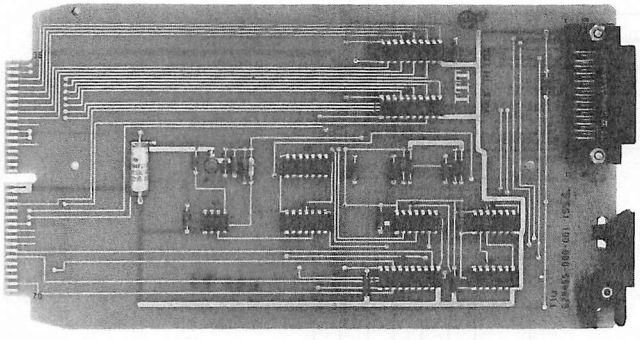

Fig. 1—TIU, 628455

1.02 Whenever this Section is reissued, the reasons for reissue will be listed in this paragraph.

1.03 The unit interfaces the automated test and alignment unit (ATAU), 628450, to the common equipment units in the D448 multiplex terminal. The TIU, in conjunction with the ATAU, is used in the testing and troubleshooting of the terminal.

2. DESCRIPTION

2.01 The unit mounts in the D448 multiplex shelf (common equipment section) in connector J6C. In multiplex shelves, 628001 and 628005, the unit is factory-equipped in the shelf. In other versions of the shelf, the TIU should be field-installed in all shelves when the ATAU is used locally. Installation procedures for the unit are provided in Section ITTR-18-431 (for Mode 1 operation), ITTR-18-432 (for Mode 2 operation), or ITTR-18-433 (for Mode 3 operation).

2.02 The unit is available in Group -0 only.

2.03 The unit consists of an epoxy-glass printed circuit board (PCB) and associated circuit components. The lower front edge of the PCB is fitted with a handle to facilitate insertion and removal of the unit from the shelf. An identification strip on the handle face indicates the unit mnemonic (TIU), last three digits of the model number, last three digits of the part number, and issue letter. The part number and issue letter are also located on the component side of the PCB directly behind the handle.

2.04 Printed circuit wiring is etched on both sides of the PCB. Unit inputs and outputs to the ATAU are terminated in a 25-pin D connector on the upper front edge of the PCB. This connector mates with an interconnecting cable (the cable also mates with the ATAU). Unit inputs and outputs to the common equipment units are terminated in gold-plated contacts on the rear edge of the PCB. These contacts mate with a 70-pin contact edge connector on the rear of the multiplex shelf.

3. FUNCTIONAL OPERATION (FIG. 2)

3.01 The unit performs functions similar to an electronic "gang" switch to enable either Digroup A or Digroup B in the multiplex terminal to interface with the ATAU.

3.02 The SELECT A lead potential (logic high or low) determines with which digroup the ATAU is to interface. This potential is derived by the position of a toggle switch (DIGROUP A/B) on the ATAU. While connected to an in-service TIU, the ATAU is constantly monitoring the data flowing through the terminal.

3.03 To signal the TIU that the ATAU is ready to transmit data, a test interface unit enable ($\overline{\text{TIU EN}}$) pulse is forwarded from the ATAU. To ensure sufficient time for the ATAU to synchronize to the data flow of the terminal, a 200-millisecond delay circuit is used to inhibit the $\overline{\text{TIU EN}}$ pulse. Therefore, any attempt to insert data into the terminal by way of the ATAU to Digroup A buffer or ATAU to Digroup B buffer will be stopped until the ATAU is fully powered up and synchronized.

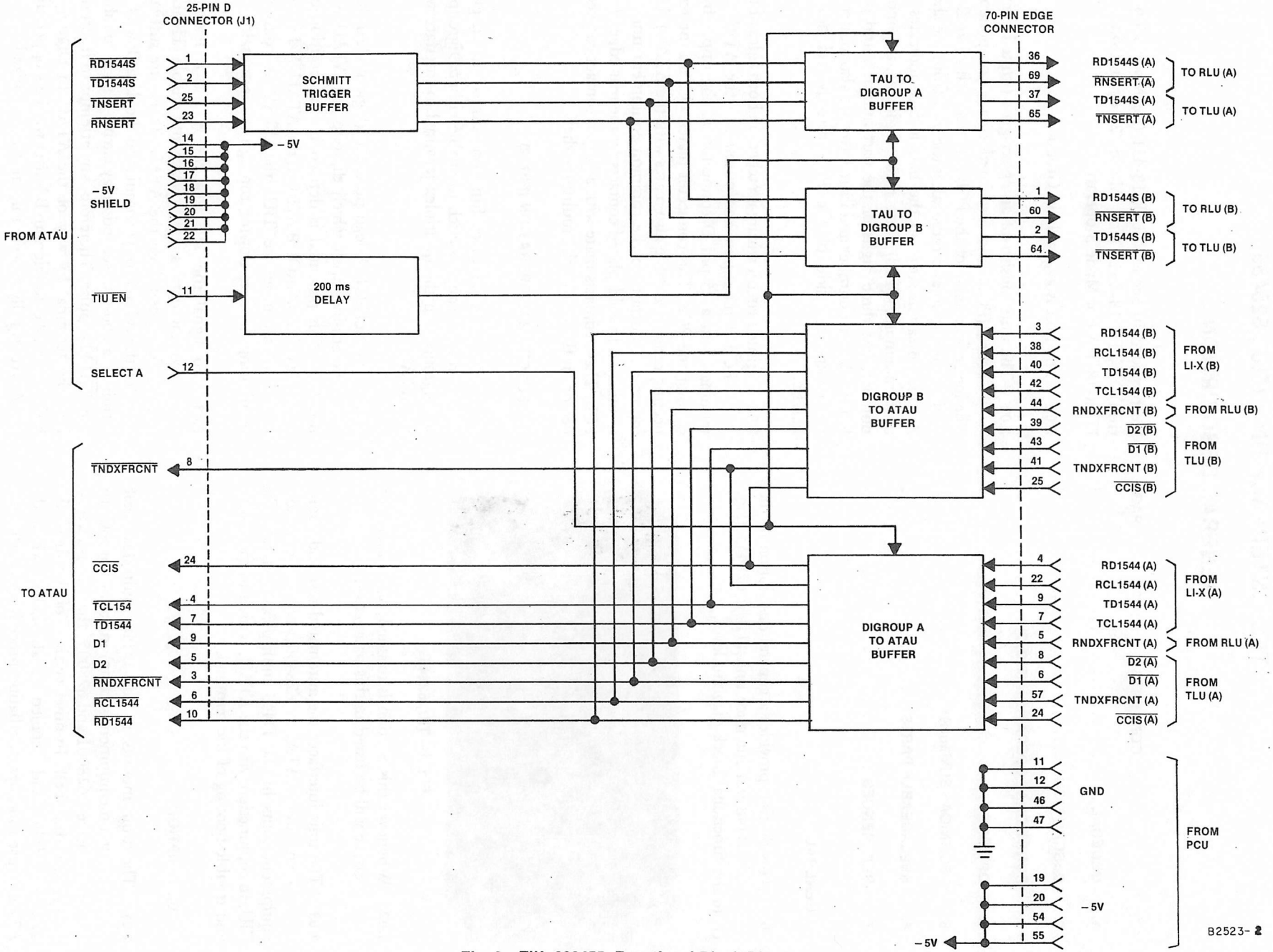

Fig. 2—TIU, 628455, Functional Block Diagram

3.04 The digital data passing from the ATAU to the terminal is subject to some induced noise because of the ATAU-to-TIU interconnect cable. Immunity to this noise is provided by the schmitt trigger buffer. Additionally, the schmitt trigger buffer input circuitry monitors the ATAU data for selected indications of faulty ATAU operation or a faulty interconnect cable. On recognition of a fault, data from the ATAU is inhibited until the problem is cleared.

3.05 Refer to Sections ITTR-18-443 or ITTR-18-445 for information on the use of the ATAU.

4. OPTIONS

4.01 This unit has no field-selectable options.

5. TECHNICAL SUMMARY

5.01 A summary of technical specifications for the TIU is given in Table A.

TABLE A

ITEM	SPECIFICATION
DC POWER	
Voltage Current	−5.0 ±0.25V 145 mA typical, 206 mA maximum
OPERATING ENVIRONMENT	
Temperature Humidity Altitude	0° to 55°C To 95% at 40°C (no condensation) To 14,000 ft (4,267 m)
DIMENSIONS	
Height Width Depth	5.0 in. (12.7 cm) 0.5 in. (1.3 cm) 9.6 in. (24.4 cm)
WEIGHT	0.4 lb (0.2 kg)

6. REPLACEABLE PARTS

6.01 This unit has no field-replaceable parts.

7. REFERENCES

7.01 The engineering drawings listed in Table B were used in the preparation of this Section.

TABLE B

TYPE	DRAWING NO.
Assembly Schematic	628455-000 628455-002

7.02 Related information on the TIU may be found in the ITTR Sections referenced in Table C.

TABLE C

TITLE	SECTION NO.
Connectorized Multiplex Shelf (MS/WC7, MS/WC5, MS/C7 and MS/C6), 628001, 628005, 628011 and 628015 — General Description	ITTR-18-005
Mode 1 Common Equipment — Installation and Pretest	ITTR-18-431
Mode 2 Common Equipment — Installation and Pretest	ITTR-18-432
Mode 3 Common Equipment — Installation and Pretest	ITTR-18-433
Channel Units — Single-Ended Transmission Tests	ITTR-18-443
Channel Units — End-to-End Transmission Tests	ITTR-18-445
Automated Test and Alignment Unit (ATAU), 628450 — General Description	ITTR-18-650